

TABLE 7-3  
AOC GROUP - CHEMICAL WASTE TREATMENT PLANT

REMEDIAL INVESTIGATION REPORT  
STRATFORD ARMY ENGINE PLANT  
STRATFORD, CONNECTICUT

AOC	Exploration Location and Rationale (Note 1)	Sample Depth Interval (feet)	Sample Analyses (by CLASS)	Field Observations (Note 2)	Analytes Detected	Release Determination	Analytes w/ Concentrations > CTDEP RSR Criteria (Note 3)
<b>AOC 8 CWTP Collection System, Pump Stations, Lines</b>  Description: Received waters from electroplating, cleaning, and anodizing processes in B-2, B-3 B-3A, and B-6.	SB12B1-1: Adjacent to ECD-4 which has had elevated metals concentrations	0.42 - 2.42	I, PCBs, SV, V	DTW = 5.5', 5" asphalt	<b>SOIL:</b> <u>BTEX</u> : Benzene, Ethylbenzene, Toluene, Xylenes; <u>VOCs</u> : 2-Butanone, Acetone, Bromomethane, Carbon disulfide, Methyl Isobutyl Ketone / 4-methyl-2-pentanone, Styrene; <u>PAHs</u> : Pyrene; <u>SVOCs</u> : Benzoic acid, Butylbenzyl phthalate, Carbazole, Di-n-butyl phthalate, Di-n-octyl phthalate, Dibenzofuran, Diethyl phthalate; <u>PCBs</u> : PCB 1254, PCB 1260; <u>TPH</u> : TPHC.  <b>GROUNDWATER:</b> <u>cVOC</u> : 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, Chloroform, Tetrachloroethene, Trichloroethene, Vinyl Chloride, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene	<b>A determination of a release from this AOC is not possible due to the presence of contamination from other sources.</b> Chlorinated and non-chlorinated solvents, fuel-related contaminants have been released to soil; however, evidence suggests there are other potential sources in addition to this AOC. No visual or olfactory observations of contamination or elevated PID readings were observed during sampling of locations adjacent to the CWTP collection system. Fuel and oil storage in USTs and ASTs and the wide-spread use of solvents in cleaning procedures within Building B-2 are likely contributing sources of contamination.	<b>SOIL:</b> Antimony, arsenic, copper, and lead > RES and/or I/C DEC; Cadmium > RES DEC, GB PMC, and GA GWPCx10; <u>TPH</u> > RES DEC  <b>GROUNDWATER:</b> The <u>cVOCs</u> 1,1-DCE, TCE, and vinyl chloride > RES and/or I/C GW VC; arsenic and cyanide > SWPC; copper, cyanide, and zinc > AWQC-SWACUTE and AWQC-SWCHRONIC
		2.42 - 4.42	I, SV, V				
	SB12B4-1: B-63 chemical waste collection and pumping station and piping potential releases.	0.5 - 2.5	I, PCBs, V, SV	R1: DTW = not encountered, 2" asphalt, refusal 1.75' due to concrete, R2: refusal due to concrete			
		3.75 - 5.75	I, SV, V				
	SB19A1-4: Adjacent to CWTP wasteline in south parking lot. To determine potential for release from wasteline.	0.5 - 2.5	I, PCBs, LI, SV, V	DTW = 4.5', asphalt 3"			
		2.5 - 4.5	I, LI, V				
		4.5 - 6.5	SV				
	SB19A1-5: See SB19A1-4.	0.5 - 2.5	I, PCBs, SV, V	DTW = 5.5', asphalt 3"			
		4.5 - 6.5	I, SV, V				
	SB19A1-6: See SB19A1-4.	0.5 - 2.5	I, PCBs, LSV, SV, V	DTW = 4.5', asphalt 3"			
		2.5 - 4.5	I, SV, V				
	SB12-3: Not Indicated. Assumed to be for the Chemical Waste line.	1 - 3	I, PCBs, SV, V, TPH	DTW = 4.5', asphalt 4", base 6"			
		3 - 5	I, SV, V				
	SB24D1-1 : Chemical Waste treatment collection structure north of B-6, potential leaks at collection pts and along pipe.	0 - 2	I, PCBs, SV, V	DTW = 3.5'			
		2 - 4	I, SV, V				
	WC-14S: Adjacent to CWTP line from Building B-6.	3 - 13	I, PCBs, SV, V	DTW < 5'			
	LW-12: Potential release to groundwater along chem waste line	4 - 12	I, V				
		WC-10S: To determine groundwater impacts from B-2 Plating Activities	0.5 - 2.5	I, PAHs, SV, V			
	2.5 - 4.5		I, PAHs, SV, V				
	3 - 13		I, PCBs, SV, V				
	SB12A1-1: Soil boring WC-10s concentrations	1 - 3	PCBs, LI, SV, V	DTW = 5.5', 4" to 1' asphalt, PID N/A			
		4.5 - 6.5	I, SV, V				
	WC-12S: To determine groundwater impacts from B-2 Plating Activities	3 - 13	I, PCBs, SV, V				
	SB12E1-1: Vicinity of monitoring well WC-12S	0.42 - 2.42	I, PCBs, SV, V, TPH	DTW = 5', 4" asphalte, PID = 0 ppm			
		4.42 - 6.42	I, SV, V				
<b>AOC 9 CWTP Cyanide Destruction B-70</b>  Description: Pre-treated cyanide-bearing water using alkali chlorination, effluent combined with other wastewaters and pumped to CWTP.	SB12B6-1: B-70 CWTP pump station, observed green water during construction	0.33 - 2.33	I, PCBs, SV, V	DTW = 5.5', 4" asphalt	<b>SOIL:</b> <u>BTEX</u> : Toluene, Xylenes; <u>VOCs</u> : 2-Butanone, Methyl Isobutyl Ketone / 4-methyl-2-pentanone; <u>PCBs</u> : PCB 1260; <u>TPH</u> : TPHC	<b>A release from this AOC has not occurred, or is not suspected.</b> Solvent and fuel-related contaminants detected in soil are likely the results of historical activities in this area, including fuel oil storage in USTs, painting and paint storage, waste paint storage and disposal, and open storage. Cyanide was not detected in samples taken adjacent to the CDF and the upstream waste line and elevated levels of copper and cadmium were not detected.	<b>SOIL:</b> Arsenic > I/C DEC
		4.33 - 6.33	I, SV, V				
	SB12B6-2: Near B70 and CWTP waste line.	0.5 - 2.5	I, PCBs, SV, TPH, V	DTW = 4.25', asphalt 5"			
		2.5 - 4.5	I, SV, V				

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<b>AOC 10 CWTP in B-18</b>  Description: Includes Chrome Reduction Unit and the Metals Removal Unit at and near Building B-18.	SB20A1-1: Potential leakage from CWTP lines	0.5 - 2.5	I, PCBs, SV, V	DTW = 5', 3" asphalt	<b>SOIL:</b> <u>BTEX</u> : Benzene, Toluene, Xylenes; <u>cVOCs</u> : Dichloromethane; <u>VOCs</u> : Carbon disulfide; <u>SVOC</u> : 1,4-Dichlorobenzene, Bis(2-ethylhexyl) phthalate, Diethyl phthalate; <u>PCBs</u> : PCB 1260	<b>A release from this AOC has not occurred, or is not suspected.</b> Low levels of fuel-related contaminants were detected in soils adjacent to the CWTP and associated structures. Heavy metals were not detected at elevated concentrations.	<b>SOIL:</b> Dichloromethane > GA GWPCx10
		2.5 - 4.5	I, SV, V				
		4.5 - 6.5	V				
	SB20A1-2: See SB20A1-1	0.25 - 2.25	I, PCBs, SV, V	DTW = 4.08', 3" asphalt			
		2.25 - 4.25	I, SV, V				
	SB20A1-3: See SB20A1-1	0.5 - 2.5	I, PCBs, SV, V	DTW = 5', 3" asphalt			
		2.5 - 4.5	I, SV				
		4.5 - 6.5	V				
	EBS43-1: East of CWTP	1 - 3	LSV, LV	DTW = N/A			
		4 - 6	LSV, LV				
<b>AOC 11 CWTP Solids Area in B-71</b>  Description: Solids Handling Area, located in Building B-71, which includes an 8,000-gallon FRP thickening tank and two 1-cubic yard filter presses.	EBS11-1: Solids area in B-71 for inorganics	1 - 3	LI	DTW = not encountered (boring to 6' bgs), fill material	<b>SOIL:</b> Analyzed for SPLP Inorganics only	<b>A release from this AOC has not occurred, or is not suspected.</b> Elevated concentrations of inorganics were not detected.	<b>SOIL:</b> None
		4 - 6	LI				
<b>AOC 14 Container Storage Area A&amp;B west of B-18</b>  Description: Less than 90 day haz waste storage, 55-gallon drums containing liquids and solid wastes.	SB20A2-1: B-75 Haz Waste Storage, potential contamination from dike area to surrounding soil	0.5 - 2.5	I, PCBs, SV, V	DTW = 4.4', 3" asphalt	<b>SOIL:</b> <u>SVOC</u> : Bis(2-ethylhexyl) phthalate; <u>PCBs</u> : PCB 1260	<b>There is insufficient information to determine if a release has occurred from this AOC.</b> No solvent or fuel-related contamination or cyanide was detected in soil samples. The phthalate detected in boring EBS14-1 was not detected in adjacent boring SB20A2-2 and is likely a laboratory artifact. PCBs were not known to have been handled at this AOC.	<b>SOIL:</b> Bis(2-ethylhexyl) phthalate > GA GWPCx10
		2.5 - 4.5	I, SV, V				
	SB20A2-2: B-76 Haz Waste Storage, potential contamination from dike area to surrounding soil	0.5 - 2.5	I, PCBs, SV, V	DTW = 4.42, 3" asphalt			
		2.5 - 4.5	I, SV, V				
	EBS14-1: Center of B-75 concrete pad, VOCs, SVOCs, inorganics	1 - 3	LI, LSV, LV	DTW = 5', fill (dry)			
		4 - 6	LI, LSV, LV				
<b>AOC 15 Sludge Roll off Container area north of B-71</b>  Description: Metal hydroxide filter cakes removed from filter press and stored in rolloffs.	No samples associated with this AOC.				No samples	<b>A release from this AOC has not occurred, or is not suspected.</b> No samples were taken from within the area of AOC 15, but the AOC was contained within a concrete bermed area.	No samples
<b>AOC 18 Equalizing Impoundment (Lagoon #1)</b>  Description: Formerly used to equalize wastewater discharged to the CWTP.	The AOC has been closed under RCRA Subtitle C, and a post-closure groundwater monitoring program is being conducted. Refer to Subsection 1.5.1 for further information.				No samples	<b>A release has occurred from this AOC.</b> LNAPL has been detected in monitoring well LW-5S, and additional investigations are planned for delineation of the LNAPL.	No samples
<b>AOC 19 Sludge Drying Beds (Lagoons #2, #3 and #4)</b>  Description: Unlined surface impoundments used to dewater sludge (before installation of sludge thickener).	The AOC has been closed under RCRA Subtitle C, and a post-closure groundwater monitoring program is being conducted. Refer to Subsection 1.5.1 for further information.				No samples	<b>A release has occurred from this AOC; however, this AOC has been closed under RCRA Subtitle C and a post-closure groundwater monitoring program is being conducted.</b>	No samples

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<b>AOC 25 Discharge to Housatonic River at OF-008 and drainage channel</b>  Description: Facility outfall used to discharge supernatant from CWTPs clarifier to the Housatonic River.	OF-008 (SD): To determine site-related impacts to sediment/surface water	0 - 1	I, PAHs, PCBs, SV		<b>SEDIMENT:</b> <u>VOC</u> : 2-Butanone, Acetone, Carbon disulfide; <u>PAH</u> : 2-Methylnaphthalene, 9H-Fluorene, Acenaphthene, Acenaphthylene, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[ghi]perylene, Benzo[k]fluoranthene, Chrysene, Dibenz[ah]anthracene, Fluoranthene, Indeno[1,2,3-c,d]Naphthalene, Phenanthrene, Pyrene, ]pyrene; <u>SVOC</u> : 2,4-Dinitrotoluene, Bis(2-ethylhexyl) phthalate, Di-n-octyl phthalate, Dibenzofuran, N-Nitrosodi-n-propylamine, N-Nitrosodiphenylamine; <u>PCBs</u> : PCB 1248, PCB 1254, PCB 1260; <u>RSR Inorganics</u> : Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Cyanide, Cyanide, Lead, Mercury, Nickel, Reactive, Selenium, Silver, Trivalent Arsenic, Vanadium, Zinc	<b>A release has occurred from this AOC.</b> Documented releases of nickel, cyanide, and total toxic organics, chlorinated VOCs, fuel-related VOCs, and other VOCs, have occurred to OF-008.	<b>SEDIMENT:</b> No RSR criteria for sediment
		1 - 2	I, PAHs, PCBs, SV				
	008 (SD): To determine site-related impacts to sediment/surface water	0 - 0.5	I, PCBs				
		0 - 1	I, PAHs, SV				
		1 - 2	I, PAHs, SV				
		2 - 4	I, PAHs, PCBs				
	SD08001A: To determine site-related impacts to sediment/surface water	0 - 0.5	I, PAHs, PCBs, V				
<b>AOC 43 B-18 former UST</b>  Description: Former #2 Fuel Oil UST near Building B-18.	SB20A1-1: Potential leakage from CWTP lines	0.5 - 2.5	I, PCBs, SV, V	DTW = 5', 3" asphalt	<b>SOIL:</b> <u>SVOC</u> : Bis(2-ethylhexyl) phthalate, Diethyl phthalate	<b>A release from this AOC has not occurred, or is not suspected.</b> This AOC handled petroleum products, and fuel-related contaminants were not detected in SB20A1-1.	<b>SOIL:</b> None
		2.5 - 4.5	I, SV, V				
		4.5 - 6.5	V				

- Notes:
- 1. Sample Rationale provided in this table is based upon available historical documentation (e.g., workplans) for sample locations and proximity to identified potential source areas.
  - 2. Remarks presented in this table are based upon available historical documentation (e.g., soil boring logs, field sheets).
  - 3. See figure for specific samples with analyte concentrations exceeding RSR criteria.

Acronyms:

DTW - Depth to groundwater

GB PMC - Pollutant mobility criteria for soil with GB aquifer status.

GW I/C VC - Industrial/Commercial Volatilization Criteria for groundwater

I/C DEC - Industrial/Commercial Direct Exposure Criteria for soil.

n/a = not available

PAHs - Polynuclear aromatic hydrocarbons

PCBs - Polychlorinated biphenyls

PID = Photionization detector

ppm = parts per million

R1 or R2 - Run 1 or Run 2

SPLP - Synthetic Precipitate Leaching Procedure

SV I/C VC - Industrial/Commercial Volatilization Criteria for soil vapor.

SVOCs - Semi-volatile Organic Compounds

TPH - Total Petroleum Hydrocarbons

VOCs - Volatile Organic Compounds

I - Inorganics

LI - SPLP Inorganics

LPCB - SPLP PCBs

LPS - SPLP Pesticides

LSV - SPLP SVOCs

LV - SPLP VOCs

SV - SVOCs

V - VOCs

Prepared by: RTB

Checked by: DRP